May 28, 1929. W. S. WEBER 1,714,534

CARTON FILLING MECHANISM

Filed Oct. 14, 1927 2 Sheets-Sheet 1

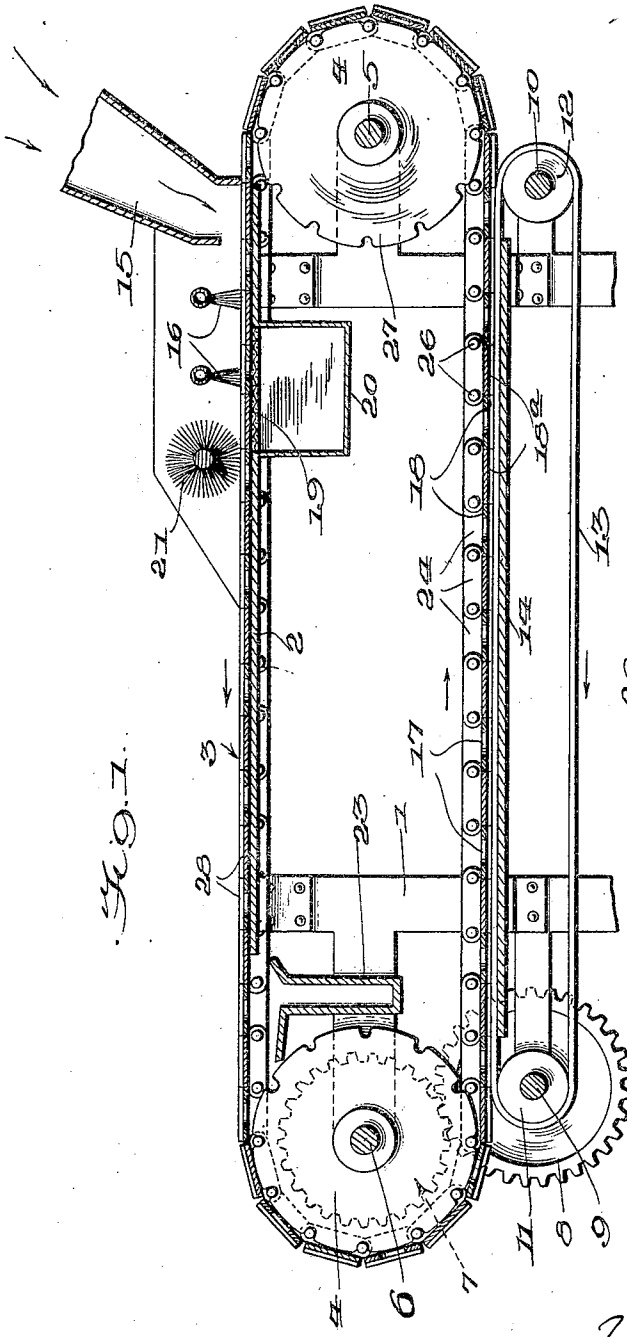


Fig. 1.

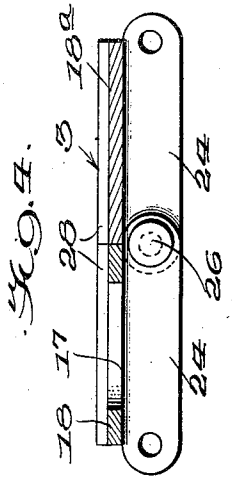


Fig. 4.

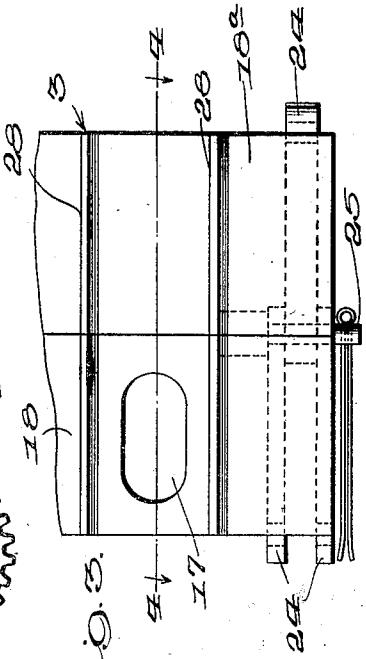


Fig. 5.

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CARTON FILLING MECHANISM

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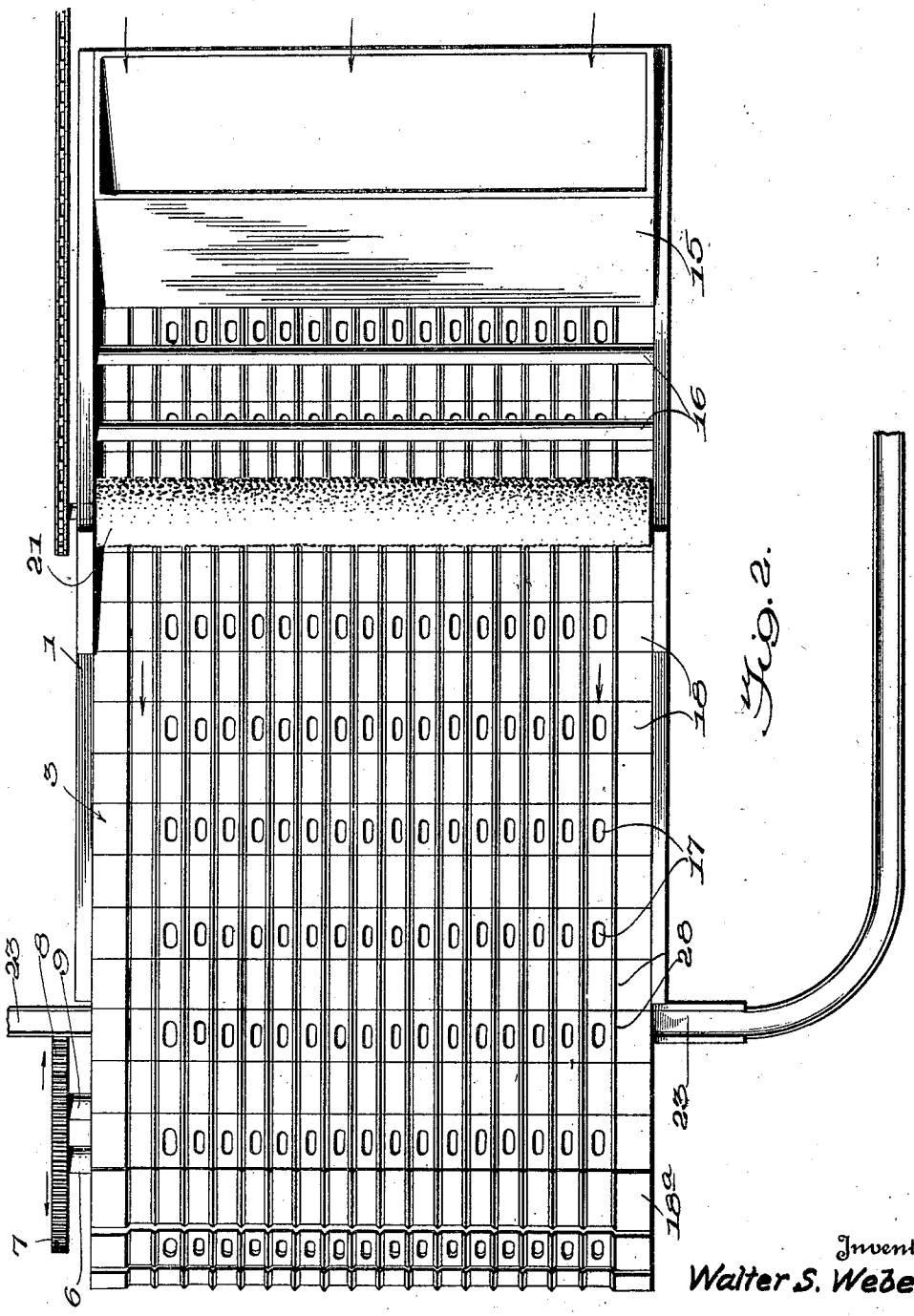


Fig. 2.

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Patented May 28, 1929. 1,714,534

UNITED STATES PATENT OFFICE.

WALTER S. WEBER, OF READING, PENNSYLVANIA, ASSIGNOR TO WM. H. LUDEN, INC., OF READING, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

CARTON-FILLING MECHANISM.

Application filed October 14, 1927. Serial No. 226,090.

This invention relates to improvements in mechanism for depositing a predetermined number of articles into a receptacle.

The primary object of the invention is to furnish a machine adapted to fill a series of cartons, each with a predetermined number of small articles, such as candy tablets or the like, while the cartons are intermittently fed along a runway which leads them to a carton closing mechanism.

A further object is to furnish a mechanism for this purpose, in which the articles are moved forwardly by a continuously moving endless belt made up of alternately arranged perforated feed sections, and imperforate blank sections; the articles to be boxed being deposited in the perforations of the feed sections, and being delivered by the latter into the cartons during intervals when the series of cartons is at rest.

In the Weber et al. Patent 1,476,274 of December 4, 1923, a machine for this general purpose is disclosed, in which the articles are fed by means of intermittently moving flat plates or plaques, and the present device differs mainly from the mechanism disclosed in the Weber et al. patent, by employing an endless belt in place of the flat plaques. In the improved belt construction made up of the perforated feed sections and imperforate blank sections, the intermittent movement of the line of cartons takes place while the imperforate sections of the continuously moving belt are moved over the same, and due to this construction, the mechanism is much simpler, and is cheaper and easier to run and maintain, and gives greater speed possibilities.

With the foregoing objects outlined, and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

Referring to the drawings:

Fig. 1 is a vertical longitudinal sectional view of the improved machine.

Fig. 2 is a top plan view of the same.

Fig. 3 is an enlarged top plan view of a portion of the feeding belt, illustrating the means for connecting the links or sections of the same.

Fig. 4 is a vertical sectional view of the same, taken on line 4—4 of Fig. 3.

In the drawings, 1 indicates a supporting frame carrying a table 2 which forms a slideway for the upper run of the feed belt 3.

The belt is mounted at its return bend portions upon sprocket wheels or the like 4, carried by shafts 5 and 6.

The shaft 6 is provided with a gear 7, that is continuously rotated by a gear 8 on a shaft 9 which may be continuously driven by any suitable mechanism. The shaft 9 and a similar shaft 10 are arranged below the table, and they carry wheels 11 and 12 on which is mounted supporting or anti-friction belts 13. The upper runs of the latter belts are prevented from sagging by a lower auxiliary table 14, and the lower run of the upper or feed belt rests on and moves with the lower belt, whereby the upper belt moves without friction, and is prevented from sagging.

A feed hopper 15 is carried by the frame and arranged above the table, and the articles to be packaged move by gravity from this hopper on to the upper surface of the upper run of the feed belt. As the latter moves over the table 2, brushes 16, which may be rocked by any suitable mechanism, cause the articles to distribute themselves in the pockets 17 of the perforated sections or links 18 of the belt.

The table 2 is provided with a transverse perforated or screened portion 19 to permit any small particles breaking off of the articles, to fall through the table into a suitable receptacle 20.

Another brush 21 extends across the table above the belt, and may be rotated in a counter-clockwise direction by any suitable mechanism, for the purpose of insuring filling of the pockets, and preventing any excess articles from riding on the upper surface of the belt.

A runway 23 is arranged at one end of the table and extends at right angles to the feed belt, and the cartons to be filled are inter-

mittently fed along this runway by any suitable mechanism.

As before stated, the feed belt is continuously driven, and as one of its imperforate sections 18ª comes over the runway 23, the series of cartons in the runway will be moved forward one step, as the mechanism will be suitably timed to take care of such action. Then, while the cartons are at rest, one or more of the perforated sections of the belt may be moved over the same, so that the articles carried in the pockets of that section or those sections, may drop through into the cartons in the runway, which, of course, at this time are in alignment with the perforations of the belt.

By the use of this mechanism, each carton may be gradually filled with lozenges or the like, while the cartons are intermittently moving along the runway 23. For instance, when a carton is first halted beneath the upper run of the feed belt, the mechanism may be so timed that one or more articles are dropped into the carton. Then, while one of the blank or imperforate sections 18ª of the feed belt is passing over the runway 23, the line of cartons may be shifted. Now, the carton will receive one or more articles, and afterwards, the carton will again be shifted while an imperforate link of the belt is over the runway, and so on until the package is entirely filled.

After the cartons are filled, they are preferably fed along the runway to a closing mechanism of the type shown in Patent No. 1,641,794, dated September 6, 1927.

As best shown in Figs. 3, and 4, the chain links have end flanges or ears 24, pivotally connected together by pins 25 carrying roller portions 26 which engage the teeth 27 of the sprocket wheels on which the feed belt is mounted.

Each link or section is preferably rectangular in plan, and is provided on one side with the pivot ears, and its opposite side, with parallel ribs 28; the latter cooperating with the brushes 16 to facilitate the distribution of the tablets or the like, into the apertures of the feed sections of the belt. The ridges or ribs 28 are spaced as shown to correspond with the width of the lozenges.

Each link or section of the belt is preferably formed of a metal casting, and I use metal wherever possible in the remaining portions of the machine.

From the foregoing it is believed that the construction, operation and advantages of the invention may be readily understood, and it is apparent that changes may be made in the details disclosed without departing from the spirit of the invention as expressed in the following claims.

What is claimed and desired to be secured by Letters Patent, is:

1. In combination with an intermittent container moving mechanism, a continuously moving feed belt arranged at an angle thereto and comprising feed sections and blank sections, alternately arranged; the intermittent container movements being timed to occur during the passing of each blank section, said feed sections having a series of alternately aligned feed apertures adapted to register severally with a series of containers, when the latter are at rest, and successive intermittent movements of the latter being arranged to cumulatively load each of said containers.

2. In combination with a runway supporting a series of intermittently moved cartons, of a continuously moving feed belt having one of its runs extending across said runway, and comprising perforated feed sections and imperforate blank sections alternately arranged, the intermittent movements of the cartons being timed to occur during the passage of each blank section over the runway.

3. A combination as claimed in claim 2, in which the feed belt sections are pivotally connected together, and each section is provided on one side with pivot ears, and on its opposite side with parallel spaced ridges.

4. In combination with a runway supporting an intermittently moving series of open cartons, of a continuously moving feed belt having one of its runs extending across said runway, and comprising feed sections and blank sections alternately arranged, the feed sections permitting the passage therethrough of articles into said cartons, and the series of cartons being movable along the runway while the blank sections of the feed belt are passing over said runway.

5. In combination, a table, a runway associated with the table and supporting a series of intermittently moving cartons, a continuously moving feed belt slidable along said table and having one of its runs movable across said runway, means for depositing on one run of the belt, articles to be fed into said cartons, said belt comprising perforated feed sections and blank sections alternately arranged, the perforated sections being adapted to receive the articles and move them along the table, and to finally drop them into the cartons, and the blank sections permitting movement of the series of cartons step by step between the feeding operations of the feed sections.

6. The combination with a runway supporting a series of intermittently moving open cartons, of a continuously moving feed belt arranged at an angle thereto and having alternately arranged blank sections and feed sections whereby articles are fed into the cartons when the latter are at rest, and sag-preventing means for said feed belt comprising fixed and movable supports therefor, the latter of which consists of a separate belt driven in unison with said feed belt.

7. In combination, a runway supporting an intermittently moving series of open cartons, a continuously moving feed belt having one of its runs extending across said runway, means for depositing on said belt articles to be fed into said cartons; said belt comprising connected feed sections and blank sections alternately arranged, said feed sections being provided with a series of transversely alined perforations and all the sections being provided with alined parallel ribs extending between said perforations.

In testimony whereof I affix my signature.

WALTER S. WEBER.

CERTIFICATE OF CORRECTION.

Patent No. 1,714,534. Granted May 28, 1929, to

WALTER S. WEBER.

It is hereby certified that the assignee in the above numbered patent was erroneously described and specified as "Wm. H. Luden, Inc., of Reading, Pennsylvana, a corporation of Pennsylvania", whereas said assignee should have been described and specified as "Luden's, Inc., of Reading, Pennsylvania, a corporation of Pennsylvania", assignee by mesne assignments of the entire interest in said invention, as shown by the records of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 18th day of June, A. D. 1929.

M. J. Moore,
Acting Commissioner of Patents.

(Seal)